## REMARKS

Claims 1-3 and 5-27 are pending in the application and are at issue.

**The Rejection of Claims 26 and 27 under 35 U.S.C. §112, First Paragraph**

Claims 26 and 27 stand rejected under 35 U.S.C. §112, first paragraph, for failing to comply with the written description requirement. Applicants traverse this rejection.

Claims 26 and 27 recite that the oligoester comprises about 1.4 mole % up to 5 mole % of the one or more saturated triols. These claims are supported by the specification at page 9, lines 27-29 and at page 17, lines 5-9 (i.e., Example 3), reciting 94.8 g (0.80 moles) 1,6-hexanediol, 86.8 g (0.60 moles) adipic acid, and 2.6 g (0.02 moles) TMP (trimethylolpropane). Accordingly, the oligoester of Example 3 contains 1.4 mole % of the triol TMP.

The specification therefore clearly conveys to persons skilled in the art that the inventors had possession of the claimed invention at the time of filing the invention. In particular, the specification at page 9, lines 27-29 discloses that the oligoesters comprises a small amount of a triol, e.g., up to 5 mole %. As discussed above, Example 3, 1.4 mole % of (trimethylolpropane).

The examiner indicates that the disclosure of 1.4 mole % of a triol does not disclose a range, but only a single mole %. Applicants respectfully disagree and submit that one of ordinary skill in the art would recognize that the original specification is sufficient to demonstrate their possession of the presently recited range.

Statutory law requires that the specification shall contain a written description of the invention. *See* 35 U.S.C. §112, first paragraph. The courts have interpreted that provision as requiring that the description of the invention be sufficient to allow one of skill in the art to recognize that applicants were in possession of the subject matter claimed. *Vas-Cath v. Mahurkar*, 935 F.2d 1555 (Fed. Cir. 1991); *accord*, M.P.E.P. §2163 (I). Possession is shown by describing the claimed invention with all of its limitations using descriptive means such as words, structure, figures, diagrams, and formulas that fully set forth the claimed

invention. Possession may be shown by describing an actual reduction. *See*, e.g., M.P.E.P. §2163 (I).

Here, as recognized by the examiner, page 9 of the specification demonstrates applicants' possession of a range for the mol % of triol. The examiner also recognizes that Example 3 of the specification demonstrates applicants' possession of a mol % of triol within the range disclosed at page 9 of the specification.

In response, the applicants submit that their possession of both endpoints of the presently recited range and a third point between said endpoints clearly demonstrates their possession of the presently recited mol % range. Further, the applicants submit that one of ordinary skill in the art would consider such description to be sufficient to demonstrate such possession. This assertion is completely logical – if two "end points" of a range are properly disclosed and a third point between the end points is disclosed, one of ordinary skill would readily recognize that a range from the third point (i.e., 1.4 mol%) to either of the endpoints (in this case 5 mol %) also is disclosed and in the possession of the inventors at the time of filing the invention.

The examiner is further directed to the discussion of *In re Wertheim*, 541 F.2d 257 (CCPA 1976) in the MPEP §2163.05 stating that an originally disclosed range of 25%-60%, and a specific example of 36%, supported a claim amendment of between 35% and 60%. This is exactly the fact situation in the present application. The examiner also is directed to *Kolmes v. World Fiber Corp.*, 41 USPQ2d (Fed Cir 1997), which rejected a contention of new matter because of a claim limitation of 8-12 turns, when the original specification disclosed a range of 4-12 turns and specifically 8 turns as a preferred embodiment. The court found that the latter filed claim limitation of 8-12 turns was supported by the specification and that claims to subject matter in the specification is not new matter.

With respect to the contention that applicants provided support only for the trimethyolpropane disclosed in Example 3, persons skilled in the art are well aware of the definition of triol and the identity of triols. Applicants' specification is not limited to trimethylolpropane, but clearly recites "triols" in specification, stating that glycerin and

trimethylolpropane are examples of triols (page 10, lines 1 and 2). Applicants also recited "triol" in the *original claims* clearly showing possession of the claimed invention at the time of filing the application.

The examiner again is directed to the discussion of *In re Wertheim* in the MPEP §2163 wherein, with respect to original claims, there is a strong presumption an adequate written description to the claimed invention is present when the application is filed, and that it is the burden of the Patent Office to present evidence or reasons why a skilled person would not recognize a disclosure of the invention defined by the claims. The term "triol" was used in the original specification and claims, and an example using a specific triol was presented. With respect to a specific disclosure of other triols, or examples using other triols, the term triol and compounds encompassed by the term are well known to persons skilled in the art. It is also well known that a specification need not include, and preferably excludes, that which is well known in the art. Hence an exhaustive list of triols in the specification is not necessary.

With respect to providing only one example, this is more of an enablement rejection than a written description rejection. It is also well known that an example is not even required to comply with 35 U.S.C. §112. In the present case, an example using a triol is provided, and other triols known in the art can be substituted for the trimethylolpropane of Example 3 and an oligoester prepared following the procedure of Example 3. Accordingly, the example provided in the specification provides sufficient guidance for persons skilled in the art to prepare a triol-containing oligoester, and the specification demonstrates that inventors had possession of the claimed inventor at the time of filing the application.

In summary, it is submitted that claims 26 and 27 fully comply with 35 U.S.C. §112, and that the rejection should be withdrawn.

**The Rejection of Claims 1-3, 5-12, 16-21, and 26 under 35 U.S.C. §102(b)**

Claims 1-3, 5-12, 16-21, and 26 stand rejected under 35 U.S.C. §102(b) as being anticipated by Tomotsugu et al. U.S. Patent No. 5,338,613 ('613). Applicants respectfully traverse this rejection.

The Office Action relies upon the '613 patent for disclosing a urethane resin prepared from a hydroxy-functional polyester, a polyisocyanate, and 2-hydroxyethyl (meth)acrylate. The polyester is prepared from a mixture of 60-100% diol and 0-40% triol.

The '613 patent discloses that "[t]wo processes are available for synthesizing a urethane acrylate resin" (column 2, lines 64-65). In one process, a urethane acrylate resin is prepared by first providing a polyester ('613 patent, column 2, lines 20-63), which then is reacted with an aliphatic or alicyclic polyisocyanate "to prepare an isocyanate-terminated urethane prepolymer" ('613 patent, column 2, line 66 through column 3, line 9). Then, "by utilizing the residual isocyanate groups of the urethane prepolymer", a 2-hydroxyethyl (meth)acrylate is added ('613 patent, column 3, lines 9-13). An alternative method of preparing the urethane acrylate resin is disclosed at column 3, lines 14-18 of the '663 patent, i.e., addition of 2-isocyanoethyl (meth)acrylic to the terminal hydroxyl group of the polyester. By *either* method, the '613 patent teaches a urethane acrylate resin having the following general structure:

$$\begin{array}{c} \text{(isocyanate-acrylate)}_n \\ | \\ \text{acrylate-isocyanate-polyester-isocyanate-acrylate,} \end{array} \quad \text{(I)}$$

wherein n is 0 if triols and polyols are omitted and n is 1 or greater if a triol or a polyol is present.

In contrast to the '613 patent, the present claims recite a polyester urethane acrylate reaction mixture that is prepared by a substantially different method, and which provides different reaction products to the method disclosed in the '613 patents, even *if* the *same* reactants are used. As stated above, the '613 patent discloses a polyurethane acrylate resin made by preparing an isocyanate-terminated polyurethane prepolymer, *then* reacting the prepolymer with a hydroxyalkyl acrylate to form the urethane resin.

The differences between a present polyester urethane acrylate reaction mixture and a urethane acrylic resin of the '613 patent are fully set forth in Amendment "A" at pages 9-11, which applicants incorporate herein by reference. The '053 patent discussed in

Amendment "A" utilizes the same reaction sequence as the '613 patent, and accordingly the same type of reaction products result from the '053 and '613 patents. Based on the method by which the compound is prepared and the stoichiometry of the reaction, the '613 patent teaches that a resin of formula (I) above is essentially the only reaction product made. In contrast, the present gel coat resin is made *via* a different process and yields a composition *comprising* (i) a partially branched compound of structural formula (I) wherein n>0, (ii) a compound of structure formula (I) wherein n=0, *and* (iii) *other* compounds, such as acrylate-isocyanate-acrylate, that simply are not present when the ingredients are reacted according to the method of the '613 patent.

As stated in the MPEP §2131:

> "TO ANTICIPATE A CLAIM, THE REFERENCE MUST TEACH EVERY ELEMENT OF THE CLAIM
>
> 'A claim is anticipated only if each and every elements as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.' *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987)...'The identical invention must be shown in as complete detail as is contained in the...claim.' *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). The elements must be arranged as required by the claim, but this is not an *ipsissimis verbis* test, i.e., identity of terminology is not required. In *re Bond*, 910 F.2d 831, 15 USPQ2d 1566 (Fed. Cir. 1990)."

It is especially important to note that the "elements must be arranged as required by the claim" in order to support a 35 U.S.C. §102(b) rejection. The present claims recite a specific order of addition for the reactants, which differ from the order of addition disclosed in the '613 patent. On this basis alone, a rejection of the present claims as being anticipated under 35 U.S.C. §102(b) cannot be sustained. In addition, this change in order of addition also leads to different reaction products, which further makes the rejection under 35 U.S.C. §102(b) unsustainable.

In addition, the examiner states that the '613 patent *fails* to teach the claimed order of addition, and that the claimed "composition does not appear to be patentably distinct" from the compositions of the '613 patent. The examiner therefore admits that differences exist between the claimed invention and the '613 patent disclosure.

In view of the above, it is apparent that differences exist between the present claims and the coating composition of the '613 patent, and, accordingly, the rejection under 35 U.S.C. §102(b) cannot be sustained. In addition, the '613 patent teaches that only compound (I) is prepared because of the method by which the compound is prepared and the stoichiometry of the reaction. In contrast, the present gel coat resin is made *via* a different process and yields a composition *comprising* a mixture of compounds discussed above.

In summary, it is submitted that claims 1-3, 5-12, 16-21, and 26 are not anticipated by the '613 patent under 35 U.S.C. §102(b) and that this rejection should be withdrawn. It also is submitted that the differences between claims 1-3, 5-12, 16-21, and 26 and the '613 patent are substantial differences which preclude a rejection under 35 U.S.C. §103.

While some examiners have taken the position that a product-by-process claim, like claim 1, is not patentable over prior art disclosing compositions made by a different process and having the *same* structure, it is axiomatic that structure implied by process steps should be considered when assessing the patentability of product-by-process claims over the prior art. *In re Garnero*, see MPEP §2113.

The '613 patent does not anticipate or make obvious the claimed invention because the structure implied by the product-by-process type claim 1 is different from that clearly taught by the '613 patent. Applicants demonstrate from a consideration of the '613 patent and the present specification that the *structure* of the gel coat resin recited in claims 1-3, 5-12, 16-21, and 26 is different from the structure of the '613 patent composition.

In addition, the '613 patent provides no teaching or suggestion that the disclosed composition should be made by any other process. The '613 patent discloses no problems with the disclosed method or composition that would lead a person skilled in the art to alter the method or composition of the '613 patent and arrive at the presently claimed gel coat composition. There is simply no apparent reason provided in the teachings or suggestions of the '613 patent that would lead a person skilled in the art to modify the '613 patent and arrive at the presently claimed invention.

In summary, it is submitted that claims 1-3, 5-12, 16-21, and 26 are neither anticipated by, nor obvious over, the '613 patent under U.S.C. §102(b) or §103, respectively, and that the rejection should be withdrawn.

**The Rejection of Claim 26 under 35 U.S.C. §103**

Claim 26 stands rejected under 35 U.S.C. §103 as being obvious over the '613 patent. Applicants respectfully traverse this rejection.

The '613 patent disclosure has been discussed above. The '613 patent provides no teaching or suggestion to prepare a presently claimed reaction mixture by completely rearranging the two processes disclosed therein. As stated above, the '613 patent discloses no problems with the disclosed methods, or the resulting resin, that would lead a person skilled in the art to even consider altering the method or composition of the '613 patent and arrive at the presently claimed gel coat composition. There is simply no apparent reason provided in the teachings or suggestions of the '613 patent that would lead a person skilled in the art to modify the '613 patent and arrive at the presently claimed invention.

With further respect to claim 26, the Office Action focuses on the amount of triol claimed. However, applicants do not rely solely upon the mol % of triol, but rely upon the mol % of triol and *all* the features recited in claim 1, including the order of addition of reactants, i.e., the claim as a whole must be considered in a proper obviousness determination under 35 U.S.C. §103. In addition, the '613 patent broadly recites the amount of triol of 0 to 40 mole %, with no suggestions to use a low 1.4 to 5 mole % as recited in claim 26.

In summary, for the reasons set forth above, and with respect to the §102(b) rejection of claims 1-3, 5-12, 16-21, and 26, it is submitted that the claim 26 would not have been obvious over the '613 patent and that the rejection should be withdrawn.

**The Rejection of Claims 1-12 and 16-27 under 35 U.S.C. §103**

Claims 1-12 and 16-27 stand rejected under 35 U.S.C. §103 as being obvious over of the '613 patent in view of Bristow et al. U.S. Patent No. 4,213,837 ('837). The Office Action relies upon the '613 patent for disclosing a urethane acrylate resin prepared from a hydroxy-functional polyester, a polyisocyanate, and 2-hydroxyethyl (meth)acrylate. The

polyester is prepared from a mixture of 60-100% diol and 0-40% triol. The Office Action relies upon the '837 patent for teaching a method of producing a polyester urethane acrylate. The Office Action then asserts that it would have been obvious to combine the '613 and '837 patents and arrive at the presently claimed invention. Applicants respectfully traverse this rejection.

As discussed above, the '613 patent discloses two processes for synthesizing a urethane acrylate resin (column 2, lines 64-65). By *either* method, the '613 patent teaches a urethane acrylate resin having the general structure (I), provided above. The differences between the present claims and the '613 patent are discussed above.

The '837 patent does not overcome the deficiencies of the primary '613 patent. The Office Action relies upon the '837 patent to support a contention of obviousness because the '837 reference discloses three alternative methods of making polyester urethane acrylates (column 5, line 48 through column 6, line 26). The Office Action states that a preferred method of the '837 patent "allows for a better control of the exothermic reaction, and minimizes the formation of by-products". In this preferred method, the oligoester is blended with the hydroxyethyl acrylate, forming an intermediate, and then reacted with a diisocyanate.

The '837 patent is cited for teaching an alternative way to prepare a polyurethane resin, which then is combined with the '053 patent to suggest portions of the claimed invention. However, such a combination overlooks particular teachings in the '837 patent that would discourage a person skilled in the art from making the combination. For example, the '837 patent discloses particular urethane resins having specific structures of polyoxyalkylene bisphenol A polyesters, and the like. The '837 patent also appears to be directed to UV curable resins rather than the thermally curable gel coat compositions of the present claims. These and other differences illustrate that a person of skill in the art would not be motivated to combine teachings in a way leading to the presently claimed invention because of all of the other differences.

The '837 patent teaches away from modifying its disclosure to arrive at the presently recited claims. Its teaching is expressly limited to the polyol disclosed:

> "It has now been discovered that *certain* vinyl ester urethanes having a *specific* number oxyalkylene units and other *specific* limitations possess a combination of excellent properties...." (emphasis added)

col. 1, lines 58-62. Because the "excellent properties" result from " specific limitations" as described with respect to the polyol structure, a person of skill in the art would have no apparent reason to modify the '837 patent disclosure lest the excellent properties and advantages be lost.

In addition, the '837 patent is directed to *aromatic* polymers based on bisphenol A. The present claims, and the '613 patent, are directed to *aliphatic* polymers. Therefore, contrary to a statement in the Office Action, a claimed urethane acrylate gel coat and a polymer of the '613 do not have "an analogous backbone architecture". Furthermore, the control of exotherms and avoidance of by-products referred to in the '837 patent is particularly relevant to aromatic polymers, and such a teaching is not necessarily extendable to aliphatic polymers. For example, it is well known that aliphatic hydroxy groups (e.g., alcohols) and aromatic hydroxy groups (e.g., phenols) can undergo different reactions and via different mechanisms, and can undergo similar reactions differently.

The '837 patent explicitly teaches that the different blending techniques disclosed in the '837 patent to prepare the polymer provide a difference in reaction products, i.e., by-product formation is affected. Therefore, contrary to an assertion in the Office Action that the primary '613 patent teaches the same polymer as presently claimed, even though made by a different process, the '837 patent teaches that the polymer production process *does* yield different reaction products (column 6, lines 17-26). The '837 patent also teaches that different processes may require "greater care in selecting the amounts of components" (column 6, lines 24-26), which further shows that changes in order of addition of reactants affect the reaction product.

A person skilled in the art would have had no apparent reason to modify the teachings of the '613 patent by using the production method of the '837 patent. The '613 patent provides a specific method of preparing an aliphatic urethane acrylate resin. The '837 patent discloses alternative methods of preparing an aromatic acrylate urethane resin. A

person skilled in the art simply would not consider using a method of the '837 patent to prepare a resin of the '613 patent because control of an exothermic is not an issue, and the reaction product would be different, without any predictable or even identifiable benefit.

In summary, the '837 patent is directed to linear, aromatic polymers, and methods of preparing aromatic polymers are not necessarily the same as methods of the preparing aliphatic polymers. The '837 patent further teaches that different processes for preparing a polymer results in a *different* reaction product, which contradicts a contention that the order of addition of reactants does not yield different product mixtures. The '837 patent therefore fails to cure the deficiencies of the primary '613 patent. Applicants therefore respectfully submit that claims 1-12 and 16-27 are patentable over a combination of the '613 and '837 patents, and that the rejection should be withdrawn.

**The Rejection of Claims 1-3, 5-21, and 26 under 35 U.S.C. §103**

Claims 1-3, 5-21, and 26 stand rejected under 35 U.S.C. §103 as being obvious over Sirkoch et al. U.S. Patent No. 4,745,003 ('003). Applicants traverse this rejection.

The Office Action relies upon the '003 patent for teaching a coating comprising a urethane acrylate produced by reacting isophorone diisocyanate, polyester polyol, and hydroxyalkyl (meth)acrylate. The Office Action notes that the '003 patent fails to teach the claimed order of addition of the reactants, i.e., adding the diisocyanate to a blend of the oligoester and hydroxyalkyl (meth)acrylate.

First, applicants fail to find a urethane acrylate containing the three ingredients stated in the Office Action. The '003 discloses ethylenically unsaturated urethanes by reacting a polyol with a polyisocyanate containing ethylenic unsaturation, which in turn can be prepared by reacting a hydroxyalkyl (meth)acrylate with an isocyanate ('003 patent, column 3, lines 35-49). This disclosure clearly shows that the isocyanate is first reacted with the hydroxyalkyl (meth)acrylate, then with the polyol. This is in contrast to the presently claimed order of addition of the gel coat ingredients, and as discussed above leads to different reaction products than the mode disclosed in the '003 patent.

The present urethane gel coats are an ingredient of the compositions disclosed in the '003 patent. For example, Example 3 of the '003 patent incorporates a urethane acrylate resin, described in footnote 1 at column 9, lines 5-10. This is the closest urethane acrylate resin to the claimed urethane acrylate gel coat, but the '003 patent fails to disclose how the resin was prepared.

In short, the '003 patent fails to render the present claims obvious for the same reasons that the '613 patent fails to render the present claims obvious.

It is axiomatic that prior art reference must teach or suggest *all* of the limitations of the claims in order to establish a *prima facie* case of obviousness. The '003 patent fails to teach or suggest the claimed order of addition of reactants needed to arrive at the desired reaction product. Accordingly, it is submitted that the rejection of claims 1-3, 5-21, and 26 under 35 U.S.C. §103 as being obvious over the '003 patent cannot be sustained and should be withdrawn.

**The Rejection of Claims 1-3 and 5-27 under 35 U.S.C. §103**

Claims 1-3 and 5-27 stand rejected under 35 U.S.C. §103 as being unpatentable over the '003 patent in view of the '837 patent. Applicants traverse this rejection.

The '003 patent and the reason why the present claims would not have been obvious over the '003 patent are discussed above. In particular, the '003 patent fails to render the present claims obvious for the same reasons that the '613 patent fails to render the claims obvious. Similarly, the '837 patent has been discussed above, together with reasoning why the '837 patent does not cure the deficiencies of the '613 patent. The '837 patent also fails to overcome the deficiencies of the '003 patent for the same reasons the '837 patent fails to cure the deficiencies of the '613 patent.

Therefore, for the reasons set forth above, it is submitted that rejections of claims 1-3 and 5-27 over the '003 patent in view of the '837 patent under 35 U.S.C. §103 is in error and should be withdrawn.

**Applicants' Comments to Examiner's Response to Arguments**

The Office Action responded to applicants' prior arguments at paragraphs 21-26, pages 9 and 10. Applicants address misstatements made in the Office Action:

(A) Paragraphs 22 and 23 – the recitation of reaction products provided by the present invention, and set forth in paragraph 22 of the Office Action, is not based unsubstantiated opinion. It is based on simple knowledge of the different reactions that occur when the reaction ingredients are added in the order claimed. The claims do not recite a first reaction to provide a first product, then a reaction using the first product to provide a second product. The claims recite the addition of a diisocyanate to a blend (not a reaction product) of an oligoester and a hydroalkyl (meth)acrylate. The reaction products of the diisocyanate with this blend is set out in paragraph 22, and would be readily recognized as the reaction products to persons skilled in the art.

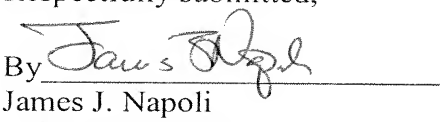
(B) Paragraph 24 – with respect to the stoichiometry for component (a), (b), and (c), the examiner's attention is directed to *original* claims 7 and 24. The statement in the Office Action that the present claims eliminate the presence of a polyester polyol having a branch value of n=0 is incorrect. Analogous to the above paragraph (A), the oligoester is prepared from a mixture of one or more saturated diol, up to 5 mole % of one or more saturated triol, and one or more saturated dicarboxylic acid. Due to the low mole % of triol, it is a statistical certainty that some of the oligoesters (preferably having a low molecular weight of about 500 to about 3000) will be free of triol, and hence have n=0. When a mixture of polyfunctional reactants such as components (a), (b), and (c) are blended and reacted, it is well known in the art the several reaction products must result.

It is submitted that all claims are in a form and scope for allowance. An early and favorable action on the merits is respectfully requested.

Should the examiner wish to discuss the foregoing, or any matter of form in an effort to advance this application toward allowance, the examiner is urged to telephone the undersigned at the indicated number.

Dated: April 2, 2009

Respectfully submitted,

By 

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